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Report on questionnaire distributed to first-semester freshmen enrolled in the College of Engineering, University of Wisconsin, 1959–60. The questionnaire dealt with student opinion on the following topics: First-year curriculum, instructional procedures in freshman courses, freshman lectures, high school preparation, and general suggestions for increasing the effectiveness of the program. (Reports were also issued for similar surveys conducted in 1957–58 and in 1958–59.)

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Prof. Lee -
For your file on
Instructional Studies
I Drumfield

Engineering Freshman Office
College of Engineering
University of Wisconsin
Madison, Wisconsin
May, 1960

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Summary of Survey Questionnaire for Freshmen in the
College of Engineering, 1959-60

A survey questionnaire was distributed to first semester freshmen enrolled in Freshman Lectures at the final meeting of the class in January, 1960. The questionnaire covered five topics:

I. First Year Curriculum
II. Instructional Procedures in Freshman Courses
III. Freshman Lectures
IV. High School Preparation
V. General Suggestions for Increasing the Effectiveness of the Program.

This section includes a brief summary of the complete "Report on Survey Questionnaire for Freshmen in the College of Engineering, 1959-60."

Eighty-one percent of the questionnaires were completed and returned. (N=416) The most characteristic student in the group was an 18 year old unmarried male, ranking in the top decile of his high school class. He was enrolled in Chemistry, Drawing, English, and Mathematics during his first semester. He lived in a University residence hall, and studied between 25 to 29 hours per week.

Approximately one-third of the freshmen reported that they received some kind of scholarship aid. Fifteen percent worked outside of school for support. Ten percent had pledged a social fraternity. Seven percent had joined a student engineering society. Seventy-six percent planned to continue work toward an engineering degree.

Part I. First Year Curriculum

Seventy-two percent of the students returning the questionnaire were satisfied with the courses they were taking in their first semester. Principal dissatisfaction was expressed with Mathematics 60. Twenty-four percent of the freshmen had dropped a course, chiefly Drawing or Political Science. Students

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would have liked to modify the first year curriculum by dropping ME 21 and 22, ROTC, and Drawing, and by adding more liberal arts subjects. A strong suggestion to modify Mathematics 60 by holding five quiz sections weekly was made.

Seventy-six percent of the freshman electrical engineers were satisfied with the elective they had chosen as their first free elective. Eighty-one percent of the freshmen were satisfied with the kind and amount of individual counseling they had received. Sixty-five percent of the respondents would not have wanted to study Physics during their first semester.

Part II. Instructional Procedures in Freshman Courses

Over 90 percent of the students rated instruction in Chemistry 2a and 4a as good or excellent. More than 80 percent of the students rated instruction in Drawing 12 as good or excellent, as did 64 percent of the students in English 1a. Rating of instruction in Math 60 and Math 6 was generally lower than ratings made by students of Math 51 in former years.

Students rated each course on the following variables: well-planned, helpful text, fair exams, enthusiastic lecturer, stimulated thinking, and good presentation of material. Separate ratings were made for Chemistry lab, lecture and quiz for the first time. The lecture ratings for both courses were uniformly high and favorable, with lab and quiz ratings decidedly less so. Ratings of English 1a were similar to those made in former years. Favorable ratings of Drawing 12 showed an increase over former years in all categories except "stimulated thinking". Separate ratings were made for lecture and quiz for both Math 60 and Math 6. Ratings of the lectures were higher than the quiz sections for Math 60, with the reverse true for Math 6. Ratings of both mathematics courses were less favorable than those given to Math 51 in former years.

Only 83 of the 416 students reported that they had no difficulty with their first semester courses. Difficulty in first semester courses was attrib-

uted to poor background, poor presentation of material, inability to understand the material in the way it was presented.

Student suggestions for improving instructional procedures in the first semester courses included a plea for better coordination between material pre sented in quiz sections and lectures in Mathematics 60, lessening of ambiguity of standards in English 1a, and differential emphasis on course content in Drawing 12, as well as improved laboratory instruction in Chemistry.

Part III. Freshman Lectures

Eighty-five percent of the respondents to the questionnaire thought that the Freshman Lectures series had helped them to learn about the different phases of engineering and to develop an understanding of the engineering field. One-third of the students reported that their ideas about the engineering profession had been modified, with a resultant increase or decrease in the attractiveness of the profession.

Lectures rated by students as most helpful included those on "How to Study", "The Engineering Profession", "Electrical Engineering", "Entering the Engineering Profession", and the Laboratory Tours. Generally, the lectures were considered helpful because the material presented was applicable to any of the fields of engineering, it was well presented, practical, and gave information about the work engineers do when they leave college.

Tours nominated as most informative were Solar Energy Lab, Chemical Engineering Labs, Electrical Engineering Labs, and Mechanical Engineering Labs. The tours so rated were described as being well presented, showing new and interesting material, and as having good guides.

Part IV. High School Preparation

Fifteen percent of the students rated their high school preparation as excellent, while 48 percent rated theirs as good. Approximately half of the students felt they should have had more or better preparation in high school

English and Mathematics. Ninety percent of the students who had no high school chemistry would have liked more or better preparation, as did 72 percent of the students who had had no high school drawing. Generally, in each of the subjects about which information was requested, quality of training would seem to be an important factor in the desire for more or less preparation.

Students suggested that their high school courses might have been improved if the high schools had offered more advanced courses, more courses in each field, and if the courses had been directed toward a college level and had had college-like requirements.

Approximately half the students rated the vocational guidance they had received in high school as good or excellent. The students thought the vocational guidance might have been improved if it had offered more information about college courses, provided more conferences to discuss interests and planning, and provided a better vocational testing program. Half of the students reported that they knew the kinds of courses they would take in the College of Engineering while still in high school, and half stated that they knew the kinds of work they would be doing as engineers. There seemed to be a lack of specific information about engineering training and preparation on the part of half the students while in high school.

Part V. General Suggestions for Increasing the Effectiveness of the Program

Suggestions for increasing the effectiveness of the freshman program in the College of Engineering were made by approximately one-fourth of the respondents. Suggestions about counseling and guidance were directed toward a plea for more individualized attention, with an appeal for a course of studies more closely tailored to individual needs. Suggestions about instruction in courses centered around a plea for better instruction, and better coordination among courses, with better information being made available to students about their on-going performance. Suggestions about high schools stressed the need for

providing better preparation for college courses, and for better information about college itself. Suggestions about the freshman curriculum concerned modification of the choice of courses, suggestions to add or delete courses, or to modify the level or pace at which a particular course was offered.

Engineering Freshman Office
College of Engineering
University of Wisconsin
Madison, Wisconsin
May, 1960

Report on Survey Questionnaire for Freshmen in the College of Engineering, 1959-60

The survey questionnaire was distributed to first semester freshmen enrolled in Freshman Lectures at the final meeting of the class in January, 1960. A similar questionnaire had been distributed to the 1957-58 and 1958-59 freshman classes. The questionnaire explored reaction to and evaluation of experiences of freshmen during their first semester in the College of Engineering. A sample of the questionnaire is attached to this report. Five topics were covered; these were:

I. First Year Curriculum
II. Instructional Procedures in Freshman Courses
III. Freshman Lectures
IV. High School Preparation
V. General Suggestions for Increasing the Effectiveness of the Program.

Eighty-one percent of the questionnaires were completed and returned. (N=416) The most characteristic student in the group completing the questionnaire was male, 18 years old, unmarried, and ranked in the top decile of his high school class. Typical first semester courses for the group included Chemistry 2a or 4a, Drawing 12, English 1a, and Mathematics 60. The group differed from those studied in former years in that Mathematics 60 was offered for the first time as the first course in mathematics carrying degree credit for engineering students, and in that freshman electrical engineers had the option, for the first time, of taking an elective other than drawing if they had drawing in high school.

Student responses to the question regarding their place of residence showed that, in contrast to the single men in the University at large, proportionately more of the engineering freshmen lived in University residence halls, fewer lived in fraternities, lodging houses or private homes, with parents or relatives, or in their own apartments.

29 of the 416 students reported membership in campus engineering societies, with 20 of the 29 belonging to the student branch of the American Society of Civil Engineers. Ten percent of the respondents reported that they had pledged a social fraternity on campus.

Thirty-nine percent of those completing the questionnare reported some kind of scholarship aid, ranging from two National Merit scholars to various local aid programs. Seventy-three students reported that they had attended one or more of the Tau Beta Pi tutoring sessions for freshmen. Of these, seventy-eight percent found the tutoring program helpful. A variety of reasons were given when students felt the sessions were not helpful. These included reports that the tutor couldn't handle the individual's problems, or that the material covered was inappropriate to the student's difficulties.

Fifteen percent of the students answering the questionnaire worked outside of school during their first semester. Of these, three-fourths worked less than fourteen hours per week, while two students worked more than 25 hours. Students were asked to estimate the number of hours per week they spend in study, over and above the number of hours they were in class. The estimates ranged from ten to more than 45 hours per week, with the median time estimated at between 25 to 29 hours. Fourteen percent of the respondents spent more than 40 hours per week studying. All but sixteen students felt that they should spend more time studying.

Seventy-six percent of the freshmen planned to work toward a degree in engineering. Those who did not plan to continue in the field gave a variety of reasons for changing their vocational goal. These included dislike for or lack of interest in mathematics or engineering, feeling on the part of the student that he was better suited to something else, difficulty with the curriculum, changed pattern of interest, and desire to change to a more liberal curriculum.

Part I. First Year Curriculum

This part of the questionnaire asked questions about the students' satisfaction with the courses taken during the first semester, their criticisms of the courses, and their suggestions for improvements in the curriculum. As a corollary, students were asked for the first time about their reactions to the counseling they had received during their first semester.

Seventy-two percent of the respondents answered affirmatively when asked whether they were satisfied with the courses they were taking in their first semester. (This percentage is similar to that reported in the last two years.) Those students who were dissatisfied were asked to state the reasons for their dissatisfaction. The reasons given included: a) dissatisfaction with Mathematics 60, because of dislike for the course, difficulty with the course, and poor teaching in the course, b) dissatisfaction with the drawing course because it was too time consuming or because of dislike for the course, c) dissatisfaction due to lack of background, particularly for the mathematics course carried, and d) complaints that the various courses were not interesting, were either too difficult, too easy, or not challenging enough. Several students indicated that they were dissatisfied because they were no longer interested in majoring engineering.

Twenty-four percent of the freshmen reported that they had dropped a course during the semester. Of these, one-half had dropped drawing, and one-tenth had dropped Political Science. Five or more students had dropped ME 25, ME 21 and 22, Speech, and Mathematics 60. When students were asked, "If you could have dropped a course without penalty during the first semester, which one would it have been?", twenty-five percent of the students did not answer the question, and an additional sixteen percent said they would not have dropped a course. This percentage of satisfied students is higher than in former years. Students who would have dropped a course if they could have done so without penalty listed a variety of courses they would have dropped. The courses nominated by ten or more students were Political Science, Chemistry, ME 25, Mathematics 6 and 60, Drawing 12, ME 21 and 22, English, ROTC. Mathematics, Political Science, and ROTC are the new entries on this list this year. Reasons listed for wishing to drop the above courses included complaints that a) the course took too much time, b) the course was a waste of time, c) the student didn't learn much, d) the

course was not well taught, e) the course was too hard, f) the course took too much time or work for the credit given, g) the student lacked interest in the course, h) the student performed poorly in the course, i) the student didn't understand or like the course, and j) the student's high school preparation was insufficient.

Students were asked whether they would have liked to modify their first semester program of studies by any additions or deletions. Sixty-two percent replied that they would not modify the program in any way. Those who would have modified the program mentioned most frequently their desire to drop ME 21 and 22, ROTC, and Drawing. Several students stated that they would have prefered to be enrolled in Math 6 rather than Math 60, or that they would have liked the lecture system eliminated from Math 60. There were a number of students who would have liked to add liberal arts subjects, language in particular. Almost every course in the freshman roster came in for at least one comment, suggestions to add or drop the course, to increase or decrease the credits involved, etc. Those courses specified above were mentioned by five or more students.

Electrical engineers were asked, "If you chose a free elective in your first semester, were you satisfied with this choice?" Only seven of the 148 electrical engineers who completed the questionnaire failed to answer this question. Of these, seventy-six percent were satisfied with their choice of elective. Those who were not satisfied with their choice of elective gave as reasons that the course was not interesting, not useful, not needed, not related to engineering, poorly taught, or took too much time. Only one student mentioned that he hadn't known what the course would cover. Likewise, only one student mentioned that his failure to pass the course was the reason for his dissatisfaction.

When students were asked whether they realized that it is possible to postpone taking a required course and substitute an elective, sixty-five percent replied that they did not know this.

Following this, the students were asked whether they were satisfied with the kind and amount of individual counseling they had received during their first semester. Eighty-one percent of the respondents said that they were satisfied with the individual counseling they had received. Those who were not satisfied were asked to list the reasons for their dissatisfactions. Nineteen students reported that they had not taken advantage of the counseling available, while twenty-two students were dissatisfied because they felt more counseling should have been given. The following reasons were mentioned by only one student: "Told to make own decision", "Told faults but not how to correct them", "Questions not important enough to take to Dean Shiels were unanswered", and "Couldn't make people realize my position". Two students reported that it was difficult to see anyone, and two felt that the counseling was too impersonal.

The final question of the first section asked for suggestions for planning a more effective course of studies for freshman engineers. Sixty-seven percent of the respondents had no suggestions to offer, and twelve percent did not answer the question. Most of the suggestions given dealt with plans for the revision of Math 60, generally taking the form of requesting five quiz sections weekly instead of lectures plus quiz sections in the course. Other suggestions incorporated plans for adding more liberal studies, or more electives. As part of this question students were asked whether they would have liked to have taken Physics in their first semester. Sixty-five percent said they would not, sixteen percent did not answer the question or had no opinion on the matter.

Part II. Instructional Procedures in Freshman Courses

Students were asked to rate the instruction in their first semester courses as excellent, good, fair, or poor. Since the students had taken a number of different courses, results will be analyzed only for those courses taken by the most typical students in their first semester, namely, Chemistry 2a and 4a, Drawing 12, Mathematics 60 and 6, and English 1a.

Students' rating of instructional procedures

	No. of Students	Percent of students rating course as Excellent	Good	Fair	Poor
Chemistry 2a	317	55.2	39.7	3.8	1.3
Chemistry 4a	79	55.6	35.4	7.6	1.3
Math 60	332	10.3	25.3	35.2	29.2
Math 6	68	7.3	29.5	22.1	41.1
English 1a	377	14.1	50.3	30.0	5.6
Drawing 12	321	32.0	51.4	14.3	2.2

Over ninety percent of the students rated instruction in Chemistry 2a and 4a as good or excellent. More than eighty percent of the students rated instruction in Drawing 12 as good or excellent. These ratings are similar to those obtained in previous years. Sixty-four percent of the students rated instruction in English 1a as good or excellent, an increase of favorable ratings over previous years. Rating of instruction in Math 60 and Math 6 was generally poorer than the ratings made by students of Math 51 in previous years. In the 1958-59 freshman class, Mathematics 51 was rated good or excellent by sixty-five percent of the respondents; in the 1957-58 class it was rated good or excellent by forty-six percent of the respondents.

The second part of the question asked the students to check appropriate course descriptions in the areas of planning, text, exams, lecturer, etc. For appropriate courses, quiz, lecture and lab ratings were given independently.

Percent Rating		Well Planned	Helpful Text	Fair Exams	Enthusiastic Lecturer	Stimulated Thinking	Good Presentation of Material
Chemistry 2a	Lab	77.2	55.7	34.6	21.3	41.4	35.2
	Lect	87.2	58.4	67.0	90.0	51.8	85.5
	Quiz	30.0	25.3	55.4	16.7	36.4	18.5
4a	Lab	64.2	30.9	13.1	10.7	53.6	30.9
	Lect	83.3	48.5	50.0	91.7	52.4	85.6
	Quiz	44.1	53.5	57.1	29.8	46.4	41.7

Percent of students checking favorable ratings for Chemistry 2a and Chemistry 4a for each of the variables is presented above. Chemistry 2a lab is generally rated higher than Chemistry 4a lab, except for the variable, "Stimulated thinking". The lecture rating for both courses is uniformly high and favorable. Chem 4a quiz is generally rated more favorably than Chem 2a quiz. Since this is the first time that ratings are reported separately for the different parts of the course, and for both 2a and 4a, the information given above cannot be compared to that presented in former reports. However, in the latest report, for

1958-59 freshmen, students in Chemistry 2a were enthusiastic in their appraisal of the course. More than eighty percent of the students had checked that it was well planned, had fair exams, an enthusiastic lecturer, and good presentation of the material. This is similar to the ratings given above to the Chemistry 2a lecture.

Percent Rating	Well Planned	Helpful Text	Fair Exams	Enthusiastic Lecturer	Stimulated Thinking	Good Presentation of Material
English 1a	55.5	39.5	57.3	40.6	40.8	42.2
Drawing 12	77.5	62.3	81.4	43.8	51.4	62.0

For English 1a, ratings in all categories except that of "Enthusiastic Lecturer" were within one or two percentage points of the ratings made by 1958-59 freshmen. Fewer of the 1959-60 freshmen checked the category "Enthusiastic Lecturer" than did last year's students. Favorable ratings of English 1a on all the variables are generally given by less than half the respondents, the exceptions being the variables "Well Planned" and "Fair Exams", which were checked by slightly more than half the students.

The favorable ratings given to Drawing 12 showed an increase this year over last year in all categories except "Stimulated Thinking". Highest ratings were given to the categories, "Well Planned" and "Fair Exams".

Percent Rating	Well Planned	Helpful Text	Fair Exams	Enthusiastic Lecturer	Stimulated Thinking	Good Presentation of Material
Math 60						
Lect	33.9	44.2	50.2	45.5	35.2	26.8
Quiz	19.3	40.2	48.3	24.6	40.2	26.2
Math 6						
Lect	7.3	29.4	27.9	23.5	11.8	5.9
Quiz	35.3	36.8	67.7	36.8	38.2	44.2

Student ratings for Math 60 and Math 6 have not previously been reported. A comparison of the ratings for these courses with the ratings given by freshmen in former years for Math 51 shows a decided decrease in the number of favorable ratings. Students in Math 60 checked more favorable ratings for the lecture than for the quiz section, while the reverse was true for Math 6. However, in view of the tendency for most freshmen in engineering to have a favorable attitude toward Mathematics when they enter the College of Engineering, these ratings are generally lower than might have been expected. This is the first time that ratings for Math and English have been roughly comparable, with English 1a receiving more favorable ratings than Math 60 in the variables "Well Planned", "Fair Exams", "Stimulated Thinking", and "Good Presentation of Material".

The third question in the section asked students whether they had had difficulty with any course during their first semester. Only eighty-three of the 416 students replied that they had had no difficulty. The freshmen were then asked to list the course or courses with which they had had difficulty, and to tell why they experienced difficulty.

Students who stated that they had difficulty with English 1a attributed it chiefly to poor background, difficulty with writing themes, particularly the impromptu themes, and poor presentation of material by the instructors.

Students attributed their difficulties with Drawing 12 chiefly to poor background, or lack of experience with drawing, difficulty visualizing the material and lack of understanding, particularly at first, not spending enough time on Drawing, and not getting enough help from their instructors.

Difficulty with Chemistry 4a was attributed to poor high school background, and difficulty understanding the course work, especially because of hard problems.

Difficulty with Chemistry 2a was attributed to lack of high school training in Chemistry or poor high school background in Chemistry, lack of interest and/or lack of sufficient study, and to inability to understand the material in the course.

Students put the cause of their difficulties in Math 6 to inability to understand the material the way it was presented, because of the speed of presentation, or the poor presentation of material, or the poor textbook. Several students admitted that they just hadn't studied enough.

Difficulties with Math 60 were attributed to poor instruction, and lack of coordination between quiz and lecture. Students reported that the lectures were not related to the material currently being considered in the quiz sections, and many felt their difficulties were attributable to this. Students reported that instruction was poor because of a) poor quiz teachers who often did not answer student's questions b) poor choice of textbook, with examples unrelated to problems, c) a speed-up at the end of the semester, with the resultant plea to allow more time for the material to sink in. Students asked that more examples and less theory be given, yet the complaint was voiced that the examinations covered theory whereas stress in quiz section had been on examples. Students felt that the final was different from the other exams. A few students listed poor high school preparation as the reason for their difficulties with Math 60. Several students requested that more exams be given, i.e., not just six and twelve weeks exams, so that they would have a more realistic check on the work they were doing.

The final question in this section requested that students offer any general suggestions they might have which would serve to improve instructional procedures in their first semester courses in the College of Engineering. Students were asked to specify the courses to which their suggestions referred. Twenty-three percent of the respondents had no suggestions to offer, or did not reply to this question. Most of the comments and general suggestions referred to Math 60, with the general plea from students at all levels of ability to return to the plan of five quiz sections per week, rather than the two lecture-three quiz section plan in effect during the semester. Students felt that this plan would insure coordination of material presented, and would lessen their difficulty with the course. (see above)

Comments directed toward Math 6 also contained suggestions to dispense with the lecture system and substitute all quiz sections. There were several comments to the effect that the lecture system was of no value in the course.

Suggestions for Chemistry 4a were that the quiz instructors do a better job of explaining how to work problems in Chemistry. In Chemistry 2a there were suggestions asking for better planning of lab work, and a request that the instructors try to be of more help, particularly for the poorer students.

In English 1a, students seem to feel that the standards for the course were ambiguous and that this ambiguity was extremely frustrating. Such comments as "I wish I knew what they want", and "Let the student know how he is doing on his themes" illustrate this. Students seem to feel that the reputation of the English Department for giving "only C's and an occasional B" takes all drive from the student. The suggestions incorporated plans for giving the student more information about his progress, and for emphasizing how to write good themes.

The relatively few suggestions offered for Drawing 12 stressed differential emphasis on course content. For example, students suggested, "Teach auxiliary views at the beginning of the year" and "Have more lecturing on orthographic projections". Students also suggested that the lecturers proceed more slowly, use a better text, and expect less of the students.

Since the earlier studies made to show relation between grade received in a course and rating of instructional procedures showed little change in 1959-60, this analysis is presented only for Math 60, the only course taught for the first time in 1959-60. Relation between grade received and amount of high school preparation in mathematics is summarized only for Math 60.

Relation between Grades in Mathematics 60, Rating of Instruction, and Description of Courses, for Freshmen in the College of Engineering, 1959-60

Grade in Math 60	(number)	Rating of Instruction					Appropriate Description of Courses				
		Excellent %	Good %	Fair %	Poor %		Well Planned %	Helpful Text %	Fair Exams %	Enthusiastic Lecturer %	Stimulated Thinking %	Good Presentation of Material %
A	62	24.2	38.7	24.2	12.9	Lect	43.6	56.4	59.7	46.8	41.9	35.5
						Quiz	32.3	46.8	64.5	27.4	53.2	37.1
B	83	9.6	28.3	40.4	21.7	Lect	33.7	53.0	45.7	48.2	36.1	30.1
						Quiz	20.4	49.4	55.4	30.1	40.9	31.3
C	81	5.6	19.1	43.2	32.1	Lect	44.4	42.0	56.7	53.1	38.2	28.4
						Quiz	12.3	43.2	39.5	23.4	39.5	19.7
D	45	5.5	23.3	32.2	38.9	Lect	22.2	31.1	40.0	40.0	28.9	15.6
						Quiz	17.8	22.2	42.3	24.4	31.1	20.0
F	50	0.0	17.0	35.0	48.0	Lect	16.0	30.0	44.0	32.0	26.0	18.0
						Quiz	14.0	28.0	36.0	14.0	32.0	20.0

Since the analysis of Math 51 previously made is not comparable to this analysis of Math 60, no definite conclusions may be drawn. The general impression gained, however, is that math is less favorably rated this year than it has been in former years.

Relation between grades in Mathematics 60, and amount of high school preparation in mathematics for freshmen in the College of Engineering, 1959-60

Grade in Math 60	Number of students	Years of High School Mathematics				
		2 or less	2½	3	3½	4 or more
A	63	0	0	1	3	59
B	89	0	1	1	7	80
C	99	0	0	2	15	82
D	58	0	0	1	10	47
F	78	0	1	4	11	62

The figures above are based on the student's own report, and some inaccuracy is, therefore, likely. Generally, eighty percent of the students at each grade level reported four or more years of high school mathematics. The content of the four year high school course varied greatly, sometimes including such diverse studies as solid geometry, trigonometry, analytic geometry, calculus, Boolean Algebra, advanced mathematics, and sometimes not. The basic minimum, common to all, was one and one-half years of Algebra. For Mathematics 60 as for Mathematics 51 in former years, the quality of the high school courses would seem to be the important variable, rather than the quantity or the formal title and description of the mathematics courses.

III. Freshman Lectures

The introductory statement to Part III was, "The purpose of the course Freshman Lectures is to help students develop an understanding of engineering, and to help them learn about the different phases of engineering." The first question in the section asked the students whether or not they thought the course satisfied this aim. Eighty-five percent of the students completing the questionnaire thought that the course had satisfied this aim, a higher percentage than reported previously.

Students were asked whether their ideas about the engineering profession had changed as a result of the course, and if so, how they had changed. One-third responded that their ideas had been modified. The principal changes reported were to make engineering seem more attractive as a profession, or decidedly less so. For example, typical comments included, "The profession seems more attractive and rewarding.", "Engineering is not a very exciting profession.", "Engineering seems more important now.", or "My interest has diminished." Numerous comments were directed toward explaining that the student previously had had little idea that the profession was so diversified, or in general, that the engineering profession was so broad in outline. About one-tenth of the students reporting that their ideas about engineering had changed as a result of the Freshman Lectures stated that they were now dropping out of engineering.

The Lectures for the first semester, 1959-60 were given in the following order:

1. How to Study
2. The Engineering Profession
3. Mining and Metallurgy
4. Civil Engineering
5. Chemical Engineering
6. Mechanical Engineering
7. Electrical Engineering
8. Engineering Mechanics and Engineering Experiment Station
9. Tours
10. Polygon Board
11. Slide Rule
12. Entering the Engineering Profession

Students were asked to list which lecture or lectures in the series they had found most helpful and which they had found least helpful, and to state the reasons for these choices.

The lectures mentioned by fifty or more students as most helpful, and the reasons given were:

Lecture	Reasons Given
1. How to Study (150 nominations)	Gave information applicable to all courses, practical, good speaker, high school students must learn to study all over.
2. The Engineering Profession (70 nominations)	Told what was expected of an engineer after graduation, very informative, interesting speaker, advice to the individual student.
7. Electrical Engineering (54 nominations)	Pertained to my field, showed the potential of the field.
9. Tours (159 nominations)	Illustrated different phases of engineering, showed our future work, concrete presentation, showed the campus, showed materials used in the profession.
12. Entering the Engineering Profession	Good presentation, applicable to all fields, shows what industry looks for, can plan for graduation.

Fewer than ten percent of the respondents nominated lectures 3, 4, 8, or 10 as most helpful.

The lectures mentioned by fifty or more students as least helpful, and the reasons given were:

Lecture	Reasons Given
10. Polygon Board (71 nominations)	Not enlightening, not interesting, old stuff, poor presentation, did not pertain to engineering so much.
11. Slide Rule	Old stuff, couldn't see much, not enough time to cover subject, didn't go deep enough, not well explained, too deep.

Generally, lectures listed as most helpful were considered so because the material presented was applicable to any of the fields of engineering, it was well presented, practical, and gave information about the work engineers do when they leave college. Lectures listed as least helpful were deemed so when they did not inform students, or were not well presented. The reaction to the lecture on the slide rule in particular was poorly received for diverse reasons; either it was too elementary or far too advanced for the students commenting.

An evaluation of the laboratory tours was requested for the first time in the current questionnaire. The tours for the first semester, 1959-60 were:

1. Solar Energy Lab
2. Chemical Engineering Labs
3. Electrical Engineering Labs
4. Mechanics Labs
5. Mechanical Engineering Labs
6. Mining and Metallurgy Labs
7. Hydraulics Labs.

Students were asked for their opinion as to whether they found the tours valuable. Eighty-four percent of the students thought that the tours were of value to them. Tours nominated as most informative by fifty or more students, and the reasons given for finding them so were:

Tour	Reasons
1. Solar Energy Lab (93 nominations)	Interesting equipment, new material, good presentation, showed future application, showed working models.
2. Chemical Engineering Labs (83 nominations)	Good presentation, covered my field, well organized, good tour leader.
3. Electrical Engineering Labs (116 nominations)	My field, good instruction, good guide, well conducted, good presentation, new material, demonstrations, showed what a grad student can do.
5. Mechanical Engineering Labs (76 nominations)	My field, informative, well organized, good guide, demonstrations, had plenty of time, saw whole building.

Fewer than ten percent of the respondents nominated tours 6 and 7 as most informative.

The tours mentioned by fifty or more students as least informative, and the reasons given were:

Tour	Reasons
6. Mining and Metallurgy Labs (66 nominations)	Hard to understand, didn't see much, too rushed, no interest, didn't learn anything, too many distractions, poor guide, crowded.

7. Hydraulics Labs	Too crowded, didn't show much, old stuff, poor presentation, too rushed, not interested, not organized, couldn't hear, boring, didn't learn anything.

Solar energy lab, although listed as one of the most informative tours, was nominated by forty-nine students also as least informative in that it was described as disorganized, too crowded, needed more time, not specific, didn't teach me anything, and couldn't hear.

Generally, the tours listed as most informative seemed to be so because the information and material covered was well presented, showed new and interesting material, and was not rushed. Each of the tours most frequently nominated was so nominated because of a good guide or a good presentation, two sides of the same coin. Tours nominated as least informative seemed to have left the students with a feeling of being too rushed, with too many students in the group so that it was difficult to see or hear, and with the feeling that they had learned little from the exposure to the labs.

When students were asked for suggestions they might have for making the tours more effective, they suggested:

Allow more time (85 nominations)
Provide better facilities for hearing
Limit tours to those areas of interest to individual
Designate places for books and coats
Provide more demonstrations
Have smaller groups
Have better-informed guides
Show fewer things and explain them more thoroughly.

A list of possible topics which might be included in future series of Freshman Lectures was presented. Students were asked to check topics they would like included. The topics, and number of nominations for each are:

Number of Nominations	Topics
147	Division of students into small interest groups
198	More demonstrations
197	More time devoted to each lab tour
183	More specific discussions of the job done by graduate engineers
152	Further explanations of how to study and take exams
232	Illustrations of problems met by engineers
133	Description of services of Student Counseling Center.

Students, in addition, suggested lectures on study habits, nuclear engineering, jobs after graduation, the role of the engineer, modern engineering applications, scholarships, space technology, and the like.

Suggestions to delete lectures on How to Study, Tours, Polygon Board, Slide Rule, and the specific engineering fields were made by five or more students.

Suggestions for improving the course included:

Give slide rule lecture earlier
Give credit for course if successfully completed
Have optional trips to industry on Saturday mornings
Have only tours, and have grad students explain their projects
The use of more visual aids will alleviate the sleeping
Have more lectures concerned with the individual student and his problems
Space lectures on various fields so they aren't all in one boring lump
Take one week for each department and combine that tour with the lecture.

Part IV. High School Preparation

Part IV of the questionnaire asked for the students' evaluation of the amount and adequacy of high school preparation for work in the College of Engineering. Students were asked to rate their preparation for the College of Engineering. These ratings were divided as follows:

Rating	Percent
Excellent	15.5
Good	48.1
Fair	27.3
Poor	7.1
No answer given	2.0

Twelve students did not answer any part of the section on high school preparation. These ratings were changed somewhat from previous years, with fewer students rating their high school preparation as either excellent, fair, or poor, and more students rating their high school preparation as good.

The second question asked students whether they felt they should have had more or better preparation in their major high school subjects, and how much training they had had in each of the subjects.

Only five students reported less than three years of English in high school, and one of these had gone to high school in a foreign country. For those students who had had three or more years of English in high school, half felt that they should have had more or better preparation in English, while the other half felt that their training in English had been adequate. Since students with identical amounts of preparation disagreed as to the adequacy of their preparation, it might be assumed that it was the nature of the training in English which accounts for this disparity.

Ninety percent of the students who had had no high school chemistry reported that they should have had more or better preparation in chemistry. More than eighty percent of the respondents had had one or more years of high school chemistry. Of these, forty-four percent said that they would have liked more or better preparation in Chemistry.

Forty-one percent of the respondents had had no drawing in high school. Of these, seventy-two percent felt that they should have had more preparation in drawing in high school. Of the students who had had a semester or more of drawing in high school, seventy-eight percent did not feel they needed more or better preparation in high school drawing. It would seem that no drawing in high school is considered a handicap, but one or more semesters of such training is deemed sufficient. Five students reported that they had taken four years of drawing in high school. Only one of the eighteen students who had had three or more years of drawing in high school felt that more or better preparation in high school would be beneficial.

Fifty-six percent of the respondents felt that they would have liked more or better preparation in mathematics in high school. Of those who were dissatisfied with their training in mathematics in high school, seventy-four percent had had four or more years of high school mathematics. Seventy four percent of those who were satisfied with their high school training in mathematics had had four or more years of training in high school mathematics. Here again, quality of high school mathematics courses would seem to be the important variable in determining satisfaction with training received.

One-third of the students responding had had no training in language other than English in high school. Of those who had had no foreign language, two-thirds reported that they would have liked more or better training in a language. Twenty-four percent of those who had two or more years of a language in high school felt that they would have liked more or better training in this area.

All but eighteen of the respondents had had at least one year of Physics in high school. Fifty-nine percent of the students who had had at least one year of high school physics were satisfied with the nature and amount of training they had had.

In the area of social studies, all but eleven students had had at least one year of training. Only fourteen percent of the students who had had one or more years of social studies felt they would have liked more or better training in social studies. This report, together with the information on language, is somewhat at variance with student suggestions that the freshman curriculum be modified to include a broader base, or more liberal studies.

Students were asked to clarify what they meant when they stated that they would have liked more or better preparation in a particular area. Various clarifications were offered. Those listed below were given most frequently.

a. Need more advanced studies, harder courses
b. Need more college preparation, including stiffer teaching
c. Not enough work given in high school. Courses should cover more. Not given enough basic training in subjects
d. Teaching should be better
e. Courses were too general. Need to cover more detail
f. Need more interesting teachers
g. Need better background for college work
h. Need more years of the courses
i. Individuals should work harder, need more competition
j. Should spend more time on subjects and less on extra activities
k. School needed better facilities, such as labs
l. Should have studied more.

As a corollary of the above, students were asked, "If you feel your preparation was inadequate, give details about what should have been included." In answer, students listed,

a. More math, science, and English courses should be given
b. More advanced courses in science and math should be offered
c. Need more or better math
d. Need more or better chemistry
e. Need more or better English, to include themes and grammar
f. Offer drawing in high school
g. Include more guidance and counseling
h. Provide harder work and more tests, raise grading standards
i. Provide more information on what will be expected in college, offer better preparation for engineering.
j. Require two years of chemistry and physics, and four years of math
k. Improve teaching.

Students were asked to rate the vocational guidance they had received in high school. Ratings were:

Rating	Percent
Excellent	14.8
Good	41.2
Fair	24.8
Poor	10.0
Non-existent	9.2

Slightly more than half the students rated the vocational guidance they had received in high school as good or excellent, an increase in favorable ratings over former years. Almost twenty percent of the students, however, rated the vocational guidance they had as either poor or non-existent.

Students were asked what the high schools might have done to help them clarify their vocational goals. Fifty-seven percent of the students responding stated there was nothing the high school could do, or gave no suggestions. Suggestions offered by the other students included:

a. Offer information about college courses
b. Give more vocational tests, and tell students the results of these tests
c. Give better guidance, to include lectures on colleges
d. Hold conferences to discuss interests and future plans
e. Provide information in engineering
f. Offer better courses
g. Help students plan courses.

As a check on the adequacy of the vocational guidance received in high school, students were asked, "Did you know the courses you would take during your first semester in the College of Engineering?" Fifty-one percent of the students replied that they did know the courses they would take, and another eight percent said they knew, at least in part, the courses they would take.

The next question asked whether the students knew the kinds of work they would be doing as engineers. Fifty-three percent replied that they did, and seventeen percent stated that they knew at least partly what they would be doing. When asked whether the idea that they had was realistic, sixty-seven percent felt

that it was, while twenty-six percent felt that their idea was at least partially realistic. At least two-thirds of the students felt that they had known the kinds of work they would be doing as engineers, and of these, ninety-three percent felt that the idea they had had was at least partially realistic. These data would seem to suggest that by the end of their first semester in the College of Engineering, prospective engineers feel that they know what they will be doing as their life work.

To the question, "If you had the choice to make again, would you enter the College of Engineering?", seventy-seven percent of the respondents answered affirmatively, and five percent were undecided. Those who answered in the negative were asked to state why they had changed their minds. The reasons given included,

Don't like engineering
Prefer another field
Want a more liberal education
Lack of or loss of interest
Engineering is too hard; Math is too hard

These responses are similar to those given to the same questions in former years.

Students were requested to offer any suggestions they might have concerning the counseling or training of high school students planning to come to the University of Wisconsin College of Engineering. Forty-five percent of the students gave no answer, or had no suggestions to offer. Suggestions offered most frequently included:

a. Tell students to take as much high school math as possible
b. Give high school students more information about engineering classes
c. Give high school students more information about the general college curriculum
d. High schools should provide more counseling
e. High schools should help students develop good study habits
f. High schools should give harder exams
g. High schools should require students to study more
h. High schools should provide a better background for college, including training in theme writing.

Part V. General Suggestions for Increasing the Effectiveness of the Program.

The final section of the questionnaire asked the students to give whatever general suggestions they might have for increasing the effectiveness of the freshman program in the College of Engineering. Seventy-five percent of the students completing the questionnaire had no suggestions to offer. The suggestions enumerated below, therefore, were made by only one-fourth of the freshmen completing the questionnaire. (The number of students making a suggestion is indicated in parentheses.)

Suggestions about counseling and guidance were directed toward a plea for more individualized attention, and an appeal for a course of studies more closely tailored to individual needs.

Several students (4) specifically mentioned the need for more individual counseling, with supplementary suggestions (mentioned once each) including a) periodic meetings with a counselor, more knowledge of counseling activities, b) greater use of the Student Counseling Center at the beginning of the year, c) appointment of more advisers (3) d) offering more counseling to small interest groups, e) having advisers counsel only in fields in which they are qualified, and f) providing more contact with junior and senior engineering students.

Suggestions relating to tailoring the first semester course of studies more closely to the individual included these: (Mentioned once each)

Assign first semester loads according to student capabilities
Have more extensive aptitude tests
Place more emphasis on engineering aptitude tests
Weigh achievement tests more heavily
Give freshmen on probation as much of a chance as 2-point students
Allow more time for picking electives.

These suggestions would seem to convey the impression that students felt they were misplaced as far as the level of the courses to which they were assigned.

Suggestions about instruction in courses centered around a plea for better instruction in courses, and better coordination among courses, with more information being made available to students about their performance. Students requested that the instruction (particularly by graduate students) be improved, that instructors take more interest in the students, and that the courses be made more interesting. One student felt that there was too much conflict between individual departments as to the goals of the student. Additional suggestions included:

Make it possible for a student to find out his grade in a course any time he wished
Give attainment exams in Drawing
All homework should be handed in and graded.

Suggestions about high schools stressed the need for providing better preparation for college courses, and for better information about college itself.

More than half of the students making general suggestions with regard to high school stressed the need for better preparation and background in high school mathematics, physics, and chemistry. Specific suggestions included those of introducing calculus into the fourth year of high school mathematics, introducing a second year of high school chemistry, and offering drawing and chemistry in all high schools. A suggestion that the high schools should gear the level of work to those going on to college rather than those terminating their education after high school was included.

More information about college itself and the skills needed therein was considered something to be offered in the high school. Students suggested lectures on how to study or a college skills course, suggested giving high

school students a better understanding of the courses they will be taking in college, especially in engineering college, and suggested that high school students should visit several college classes during their senior year in high school. An eloquent plea was made, "Stop glorifying engineering in high school and show the hard work it entails."

Suggestions about curriculum concerned modification of the choice of courses, suggestions to add or to delete courses, or to modify the level or pace at which a particular course was offered. (Number making suggestion in parentheses) Suggestions for modification of choice of course included:

Reduce limitations on courses we can take (electives)
Have an EE course instead of elective
Provide room for foreign language
Make Math 6 count toward graduation
Don't force a ME course the first semester
Substitute Freshman Forum for Freshman Lectures
Offer two hours of Freshman Lectures per week
Group students in courses according to ability. Better students should be allowed to progress faster without having upperclass standing (2)
Start with fewer credits
Start Math 60 in the second semester.

Suggestions were made to omit:

Phy Ed, ROTC, Freshman Lectures
ME for Chemical Engineers
ME labs - have all lectures,

and to add:

Physics as a freshman course (2)
A slide rule course.

Suggestions for modification of course content included:

Add refresher course to Math 60 after first six weeks
Revise math (8) Slow down math (4)
Divide Drawing into two semesters
Provide an introduction to Math 60, or have better instructors
Change content of Freshman Lectures from how much an engineer earns to courses he will take and how they will relate to work after graduation
Make Freshman Lectures a credit course and spend more time acquainting the engineer with his own specific field
Divide freshman elective into three credits per semester so those in NROTC can take two consecutive semesters of freshman English without overload.

Miscellaneous suggestions include:

Stretch four year course to four and one-half or five (7)
Offer better course schedules
Offer a course in general engineering which would be valuable for those not certain of which branch of engineering they want
Make the first year the same for all freshmen.

Section I

QUESTIONNAIRE FOR FRESHMEN IN THE COLLEGE OF ENGINEERING

(Form 1 - 1959-60)

The purpose of this questionnaire is to explore student satisfaction with the introductory program in the College of Engineering. Questions will be asked concerning specific aspects of the first year program, and then suggestions for methods for improving the program or making it more effective will be requested.

We hope that you will make an honest and sincere attempt to be helpful. If you wish to discuss any specific points on the questionnaire, please see Mrs. Greenfield, Engineering Education Research, in Room 18, T-24.

Please return this form to Dean Shiels' office, Room 22, T-24 within one week. Completion of the questionnaire will influence achievement in Freshman Lectures.

Name_____ Age _____

Department in Engineering (circle one) Sex _____

Civil Chemical Electrical Mechanical Marital Status _____

Mechanics Mining Metallurgy Date _____

1. Where do you live? (circle one) University dorm, Fraternity house, With parents, Rooming house, Own apartment, or home, With private family, Other_____.
2. Rank in high school graduating class (if known):_____ in class of_____. Year of graduation:_____ High school attended:_____
3. Do you have a scholarship?_____ What kind?_____
4. Do you belong to any of the engineering societies on campus?_____ Which one?_____
5. Have you pledged any social fraternity on campus?_____ Which one?_____
6. Did you attend any of the Tau Beta Pi tutoring sessions for freshmen?_____ How many?_____ Did you find them helpful?_____ If not, why not?
7. Do you work?_____ If so, how many hours per week?_____
8. Estimate the number of hours per week you are in class_____
9. Estimate the number of hours per week you study outside of class._____ Do you feel you should spend more time studying?_____
10. Are you planning to obtain a degree in Engineering?_____ If not, why not?
11. Final grades, first semester, 1959-60. (Indicate course and number) **

    Chemistry 2a 4a_____ Electives_____

    Drawing 12, 23_____ _____

    English 1a, 1b, 11_____ _____

    Math 1, 6, 60_____ _____

(**This will be added by the Freshman Office.)

II. First Year Curriculum

1. Are you satisfied with the courses you are taking your first semester?_____ If not, why not?
2. Have you dropped a course this semester?_____ Which one?_____

Lectures.

Name_____ Age _____
Department in Engineering (circle one) Sex _____
Civil Chemical Electrical Mechanical Marital Status _____
Mechanics Mining Metallurgy Date _____

1. Where do you live? (circle one) University dorm, Fraternity house, With parents, Rooming house, Own apartment, or home, With private family, Other_____.
2. Rank in high school graduating class (if known):_____ in class of_____.
   Year of graduation:_____ High school attended:_____
3. Do you have a scholarship?_____ What kind?_____
4. Do you belong to any of the engineering societies on campus?_____
   Which one?_____
5. Have you pledged any social fraternity on campus?_____ Which one?_____
6. Did you attend any of the Tau Beta Pi tutoring sessions for freshmen?_____
   How many?_____ Did you find them helpful?_____If not, why not?
7. Do you work?_____ If so, how many hours per week?_____
8. Estimate the number of hours per week you are in class_____
9. Estimate the number of hours per week you study outside of class._____
   Do you feel you should spend more time studying?_____
10. Are you planning to obtain a degree in Engineering?_____If not, why not?
11. Final grades, first semester, 1959-60. (Indicate course and number) **

Chemistry 2a 4a_____	Electives_____	
Drawing 12, 23_____	_____	
English 1a, 1b, 11_____	_____	
Math 1, 6, 60_____	_____	

(**This will be added by the Freshman Office.)

E. First Year Curriculum

1. Are you satisfied with the courses you are taking your first semester?_____
   If not, why not?
2. Have you dropped a course this semester?_____ Which one?_____
   If you could have dropped a course without penalty during the first semester, which one would it have been?_____ Why?

Section 2

Section I

First Year Curriculum, cont'd

3. Would you like to have modified your first semester program of studies in any way by additions or deletions?_____ How?_____

4. EE's Note: If you chose a free elective in your first semester, were you satisfied with this choice?_____ If not, why not?

5. Did you realize that it is possible to postpone taking a required course and to substitute an elective?_____

6. Were you satisfied with the kind and amount of individual counseling you received this semester?_____ If not, why not?

7. What suggestions, if any, can you offer to help plan a more effective course of studies for freshmen engineers? Would you like to have taken Physics your first semester?

II. Instructional procedures in freshman courses

1. Please rate as excellent, good, fair, or poor the instruction in your first semester courses. (Circle course number)

Chemistry 1a, 4a	_____	Electives	_____
Drawing 12, 23	_____		_____
English 1a,1b,11	_____		_____
Math 1 6 60	_____		_____

2. Please check the appropriate descriptions for your courses this semester. You may check more than one area for each course.

	Well Planned	Helpful Text	Fair Exams	Enthusiastic Lecturer	Stimulated Thinking	Good Presentation of Mat'l	Other
Chem lab							
lect							
quiz							
Math lect							
quiz							
Drawing							
English							

3. Have you had difficulty with any course(s) during your first semester?_____ Which one(s)?_____ Why?

4. Can you offer any general suggestions which might serve to improve instructional procedures in the courses you took? Please be specific in mentioning the course to which you refer.

III. Freshman Lectures

The purpose of the course Freshman Lectures is to help students develop an understanding of engineering, and to help them learn about the different phases of engineering.

1. Do you think the course satisfied this aim?_____

7. What suggestions, if any, can you offer to help plan a more effective course of studies for freshmen engineers? Would you like to have taken Physics your first semester?

II. Instructional procedures in freshman courses

1. Please rate as excellent, good, fair, or poor the instruction in your first semester courses. (Circle course number)

Chemistry 1a, 4a _____ Electives _____
Drawing 12, 23 _____ _____
English 1a,1b,11 _____ _____
Math 1 6 60 _____ _____

2. Please check the appropriate descriptions for your courses this semester. You may check more than one area for each course.

	Well Planned	Helpful Text	Fair Exams	Enthusiastic Lecturer	Stimulated Thinking	Good Presentation of Mat'l	Other
Chem lab							
lect							
quiz							
Math lect							
quiz							
Drawing							
English							

3. Have you had difficulty with any course(s) during your first semester?_____ Which one(s)?_____ Why?

4. Can you offer any general suggestions which might serve to improve instructional procedures in the courses you took? Please be specific in mentioning the course to which you refer.

III. Freshman Lectures

The purpose of the course Freshman Lectures is to help students develop an understanding of engineering, and to help them learn about the different phases of engineering.

1. Do you think the course satisfied this aim?_____

2. Have your ideas about the engineering profession changed as a result of the course?_____ How?

Section 2

Freshman Lectures, cont'd.

1.	How to Study	Dean Ruedisili
2.	The Engineering Profession	Dean Wendt
3.	Mining & Metallurgy	Profs Rosenthal & Clark
4.	Civil Engineering	Professor Lenz
5.	Chemical Engineering	Professor Ragatz
6.	Mechanical Engineering	Professor Harker
7.	Electrical Engineering	Professor Peterson
8.	Engineering Mechanics & Engr. Experiment Station	Professor Washa Dean Marshall
9.	Tours	
10.	Polygon Board	
11.	Slide Rule	Professor Grogan
12.	Entering the Engr. Profession	Professor Marks

3. Which lecture(s) did you find most helpful?_____
Why?

4. Which lecture(s) did you find least helpful?_____
Why?

5. Consider the laboratory tours in particular.
   1. Solar Energy lab
   2. Chemical Engineering labs
   3. Electrical Engineering labs
   4. Mechanics
   5. Mechanical Engineering
   6. Mining & Metallurgy
   7. Hydraulics lab

Did you find them valuable?_____
Which tour did you find most informative?_____
Why?

Which tour did you find least informative?_____
Why?

Please offer any suggestions for ways in which the tours might be made more effective.

6. Would you suggest for future series of Freshman Lectures (check one or more)

___Division of students into small interest groups
___More demonstrations
___More time devoted to each lab tour
___More specific discussions of the job done by graduate engineers
___Further explanations of how to study and take exams
___Illustrations of problems met by engineers
___Description of services of Student Counseling Center

Add lecture(s) on_____
Delete lecture(s) on_____
Please add any other suggestions

IV. High School Preparation

1. Do you feel that your high school preparation for the College of Engineering was (underline one)
   Excellent Good Fair Poor

2. Do you feel that you should have had more or better high school preparation in

	Yes	No	How many years did you have?
English			
Chemistry			
Drawing			
Math			
Language			
Physics			
Social Studies			

3. When you say better preparation, what do you mean?

4. If you feel your preparation was inadequate, give details about what should have been included.

5. Do you feel that the vocational guidance you received in your high school was (underline one)
   Excellent Good Fair Poor Non-existent

6. What could your high school have done to help you clarify your vocational goals?

7. Did you know the courses you would take during your first semester in the College of Engineering?_____

8. Did you know the kinds of work you would be doing as an engineer?_____
   Was your idea realistic?_____

9. If you had the choice to make again, would you enter the College of Engineering?_____ If not, why not?

10. Do you have any suggestions to offer concerning the counseling or training of high school students planning to come to the University of Wisconsin College of Engineering?

V. Do you have any general suggestions for increasing the effectiveness of the program for freshmen in the College of Engineering?